



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/536,991

05/31/2005

Hui Chen

Q88206

1010

23373 7590 04/02/2008
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

LO, SUZANNE

ART UNIT

PAPER NUMBER

2128

MAIL DATE

DELIVERY MODE

04/02/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,991	Applicant(s) CHEN ET AL.	
	Examiner SUZANNE LO	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-2 have been presented for examination. The prosecution of the instant application is now before Suzanne Lo.

PRIORITY

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Drawings

3. Figures 1-5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 2128

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (hereafter “APA”) in view of Sayers (“Vehicle Models for RTS Applications”).

As per claim 1, APA is directed to an integrated design system of an electric power steering apparatus in which a steering assisting force is given to a steering mechanism based on a current control value calculated from a motor current value detected by a motor current detection means, and a steering auxiliary command value calculated by a calculation means based on a steering torque and a vehicle speed (**specification, pages 1-2, background technique**), comprising: a simulation controller (**page 4, line 6, simulator**), an analysis tool of control system (**page 5, Matlab**), an analysis tool of motor electromagnetic field, and an analysis tool of mechanism of vehicle (**page 5, JMAG**), a hardware interface hardware having functions of standardization of data definitions, standardization of formats (**page 6, lines 1-3, the data is exchanged between JMAG and Matlab, S-function**) but fails to explicitly disclose wherein an interface that is connected to said simulation controller; an analysis tool of control system that is connected to said interface; an analysis tool of motor electromagnetic field that is connected to said interface; and an analysis tool of mechanism of vehicle that is connected to said interface, wherein: said interface has functions of high speed communication of data, converts files of said analysis tool of control system, said analysis tool of motor electromagnetic field and said analysis tool of mechanism of vehicle into a readable common file, and produces an index array which explains a

variable sequence, said simulation controller controls and manages entire sequence by calling- sub-routines through said interface, and carries out an integrated simulation of said electric power steering apparatus.

Sayer teaches *an interface that is connected to said simulation controller; an analysis tool of control system that is connected to said interface; an analysis tool of motor electromagnetic field that is connected to said interface; and an analysis tool of mechanism of vehicle that is connected to said interface (page 2, Figure 3, where the program is stored in the PC connected to ECU through interface hardware, 2.1 Type: A ECU Hardware in the Loop where the simulation is performed), wherein: said interface has functions of high speed communication of data (page 4, Section 4), converts files of said analysis tool of control system, said analysis tool of motor electromagnetic field and said analysis tool of mechanism of vehicle into a readable common file (Figures 3 and 5), and produces an index array which explains a variable sequence (Figure 3, wheel pulses), said simulation controller controls and manages entire sequence by calling- sub-routines through said interface, and carries out an integrated simulation of said electric power steering apparatus (page 2, Section 2, Run simulation and graphical interface, Figure 2).* APA and Sayer are analogous art because they are both from the same field of endeavor, vehicle simulation. It would have been obvious to an ordinary person skilled in the art at the time of the invention to modify the teaching of APA such to further a interface for connection a simulation controller and an analysis tools in order to lower the cost of a simulation software for RTS test packages (Sayer, page 6, Section 6 Conclusion).

As per claim 2, the combination of APA and Sayer is directed to *the integrated design system of an electric power steering apparatus according to Claim 1, wherein said integrated simulation of said electric power steering apparatus is carried out by step 1 : first, said steering torque is given, a torque control of said electric power steering apparatus is carried out, a motor control is carried out, and a current output from a motor is detected (Sayer, Figure*

3); step 2:a motor analysis is carried out based on said detected current output, torque and voltage are calculated by said motor analysis, and said calculated torque and voltage are fed back to said motor control (APA, JMAG, pages 5-6); and step 3:then, a mechanical system of said electric power steering apparatus is driven, a vehicle is allowed to run based on an output of said mechanical system, and characteristics obtained by said running of said vehicle are fed back to control of said electric power steering apparatus (Sayer, Figures 3 and 5), said analysis tool of control system is used in said step 1 (Sayer, Figure 3), said analysis tool of motor electromagnetic field is used in said step 2 (APA, page 5, JMAG), and said analysis tool of mechanism of vehicle is used in said step 3, data is exchanged among said three analysis tools through said interface (Sayer, Figure 3).

Response to Arguments

5. Applicant's arguments filed 12/26/07 have been fully considered but they are not persuasive.
6. Due to the Claim and Specification amendments, the objections to the claims and specification are withdrawn. However, the objection to the drawing is maintained as Figures 1-5 are prior art and must be labeled as such.
7. In response to the Applicant's argument that the prior art combination does not teach or suggest several limitations of claim 1, the Applicant is further directed to Sayer that teaches the interface hardware has functions of high speed communication of data (**page 4, Section 4**), converts files of an analysis tool of control system, an analysis tool of motor electromagnetic field and an analysis tool of mechanism of vehicle into a readable common file (**Figures 3 and 5**), and produces and index array which explains a variable sequence (**Figures 3, wheels pulses**) and a simulation controller which controls and manages entire sequence by calling sub-routines through said interface, and carries out an integrated simulation of an electric power steering apparatus (**page 2, Section 2, run simulation, graphical interface and Figure 2**) and APA which teaches the interface hardware has functions of standardization

of data definitions, standardization of formats (**page 6, lines 1-3, the data is exchanged between JMAG and Matlab, S-function**).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. All Claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suzanne Lo whose telephone number is (571)272-5876. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571)272-2297. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2128

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Suzanne Lo
Patent Examiner
Art Unit 2128

/SL/
03/28/08

/Kamini S Shah/

Supervisory Patent Examiner, Art Unit 2128